

## Section 1 Construction Organization

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### 1-101 General

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In accordance with the Government Code, the powers and duties of Caltrans include constructing transportation systems.

The Streets and Highways Code directs Caltrans to lay out and construct all state highways between the termini designated by law and on the locations determined by the California Transportation Commission. This code also authorizes Caltrans to enter into those contracts that are required for Caltrans to perform its duties.

The Caltrans director has delegated to the deputy director of Project Delivery various responsibilities for administering construction contracts. In turn, the deputy director of Project Delivery has delegated many of these responsibilities to the Division of Construction chief.

In addition, the majority of Caltrans construction contracts receive federal aid. Consequently, federal regulations take precedence over state law and Caltrans policy.

### 1-102 Division of Construction Organization

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The following are the responsibilities of various personnel in the Division of Construction.

#### 1-102A Division of Construction Chief

The Division of Construction chief leads the program to deliver quality transportation products and services. The Division of Construction chief does the following:

- Establishes the division's direction, definition, policies, and objectives.
- Develops and uses performance measures to determine program efficiency and effectiveness.
- Acts as a consultant to the districts and service centers.

#### 1-102B Office Chiefs and Staff

Within the Division of Construction, office chiefs and their staff assist in the following:

- Developing and improving program performance measures.
- Providing reviews to document the understanding and application of processes for administering contracts.
- Providing expert assistance on complex and sensitive contract administration issues.

Office chiefs and their staff collaborate with the construction industry and other stakeholders to improve the administration of construction contracts.

#### 1-102C Construction Field Coordinator

Construction field coordinators are responsible for the following:

- Counseling assigned districts on Division of Construction policy.
- Validating that district construction contracts are administered fairly and in good faith.
- Advising district construction managers on complex and sensitive issues in construction contracts.

### **1-103 District Construction Organization**

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A district must manage all construction contracts in accordance with statutory requirements, Caltrans directives, and Division of Construction policies.

The following include the responsibilities of various district personnel for administering construction contracts:

##### 1-103A District Director

Within district boundaries, the district director must efficiently administer and operate the Caltrans construction activities within the district.

##### 1-103B District Construction Deputy Director

The district construction deputy director must execute the Caltrans construction activities within district boundaries. The duties of the position include the following:

- Planning and directing the activities of the district construction division.
- Budgeting for personnel and other resources as necessary to administer contracts and provide for the work's integrity and safety.
- Obtaining and providing training for all activities related to contract administration and construction engineering.
- Ensuring district construction complies with statutory requirements, Caltrans directives, and Division of Construction objectives.
- Coordinating construction activities with other district functions.
- Recommending to the Division of Construction chief revisions to the policies and procedures outlined in the *Construction Manual* (manual).

##### 1-103C Construction Manager

In districts with large construction programs, the construction manager must execute within district boundaries the assigned portion of Caltrans construction activities. The duties of the position include the following:

- Budgeting for personnel and other resources necessary to administer contracts.
- Obtaining and providing training for all activities related to contract administration and construction engineering.
- Coordinating construction activities with other district functions.

##### 1-103D Construction Engineer

The construction engineer must execute the portion of Caltrans construction activities assigned and is accountable for the performance of the assigned construction employees. The duties of the position include the following:

- Supervising assigned personnel.



- Ensuring adequate training for assigned personnel.
- Ensuring that materials and completed work comply with plans, specifications, and design criteria.
- Approving (or not approving) a resident engineer's recommendation for contract change orders and time extensions.
- Ensuring that the maintenance of project records complies with this manual.
- Ensuring the performance of all safety-related activities.
- Ensuring compliance with regulations and specifications related to labor and civil rights.
- Collaborating with the district's project development unit on constructability reviews and providing expert assistance on construction matters for design and traffic engineers.
- Ensuring that the practice of civil engineering on assigned contracts complies with the Professional Engineer's Act.

#### **1-104 Office of Structure Construction Organization**

The Office of Structure Construction is responsible for the technical control of structure work. Engineers from the Office of Structure Construction are assigned to all districts to provide field engineering for structures. The district may request that the assigned structure representative act as the resident engineer where structure work predominates.

The Office of Structure Construction has the ultimate responsibility and authority for decisions relating to the structural adequacy of contract work on structures.

##### 1-104A Office of Structure Construction, Chief

For construction contracts, the Office of Structure Construction, Chief, must uniformly execute statewide structure construction services to the districts. The duties of the position include the following:

- Planning and directing the activities of the statewide division.
- Budgeting for structure construction personnel and other resources, as necessary, to administer contracts.
- Obtaining and providing training for all engineering activities for structure construction.
- Ensuring that statewide structure construction complies with regulations, Caltrans policies, and program objectives.
- Coordinating the activities of structure construction statewide with all district functions and with other Engineering Services functions.
- Recommending to the Division of Construction chief, revisions in the Division of Construction's policies and objectives.
- Producing and distributing policies and procedures for inspecting and administering structure construction work.

#### **1-104**

#### **Division of Structure Construction Organization**

#### 1-104B Area Structure Construction Manager

The area structure construction manager is responsible for the structure construction staff within a designated area of the state. The area may include one or more districts or a portion of a metropolitan area or district. The duties of the position include the following:

- Assigning structure construction staff within the manager's assigned area, including approving requests to assign structure engineers to act as resident engineers on projects.
- Obtaining and providing adequate training for all structure construction staff within a designated area.
- Advising and assisting the district about contract change orders and claims involving structure work.
- Providing the structure construction headquarters in Sacramento with status information on all contracts within the manager's area.
- Informing the district managers of structure construction activities within their areas.

#### 1-104C Structure Construction Engineer

The structure construction engineer must execute the structure portion of construction projects and is accountable for the performance of assigned structure construction employees. The duties of the position include the following:

- Supervising the activities of structure construction personnel.
- Ensuring adequate training for assigned structure construction personnel.
- Collaborating with Engineering Services and the district's design unit on constructability reviews, and providing expert assistance on structure construction methods.
- Ensuring structure materials and completed structure work generally comply with the contract plans, specifications, and design policies.
- Providing concurrence and advice to the district for contract change orders and time extensions on structure work items.
- Ensuring and verifying that the maintenance of project records complies with the manual.
- Ensuring the performance of all safety-related activities.
- Ensuring that the practice of civil engineering on contracts in the assigned area complies with the Professional Engineer's Act.

### **1-105 Construction Project Organization**

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The number of state personnel required on a contract varies with the particular circumstances involved. A resident engineer may be assigned to a single contract or may be assigned as resident engineer over several contracts. Field office assistants, assistant resident engineers, and other support personnel are assigned as necessary.

The district must obtain maximum efficiency on the project with a minimum number of personnel. This expectation means that all personnel must have adequate training.

Depending on the project size, a full-time office assistant may be assigned for the clerical work.



In some instances, several smaller projects may be grouped together and administered from a single field office, making it possible to employ full-time clerical office assistants.

Personnel furnished by engineering consultants may be assigned to the project as assistant resident engineers. The resident engineer must be familiar with the terms of the engineering consultant contract. The resident engineer must also monitor the performance of the consultant personnel.

#### 1-105A Using Personnel From the Office of Structure Construction

When structure work predominates, the districts may use structure construction personnel as resident engineers. Upon district request, the Office of Structure Construction will select staff acceptable to the district as resident engineers.

All resident engineers, whether from the Office of Structure Construction or district personnel, report and act through the district.

To ensure optimum use of combined district and structure construction personnel, the project personnel may be interchanged freely when conditions require, particularly when work load varies because of temporary overstaffing or understaffing. In such instances, the resident engineer and the structure representative will assign personnel through agreement with each other. In making their assignments, they will consider the responsibility of structure personnel for the technical control of structure work.

Because of the specialized training of structure and transportation personnel, prolonged use of either in the work of the other must be avoided.

#### 1-105B Resident Engineer

Under the general direction of a construction engineer, the resident engineer is responsible for the contract administration and construction engineering of all assigned projects. As a Caltrans representative, the resident engineer acts within the authority of the following:

- The State Contract Act
- Section 5-1.01, "Authority of the Engineer," of the *Standard Specifications*
- The manual
- Any other applicable administrative instructions

The construction engineer is the resident engineer's counselor on the intent and application of any portion of the contract. On complex or sensitive construction issues, the resident engineer and construction engineer should consult with the construction field coordinator.

A registered professional engineer must be responsible for the engineering integrity of a construction project. If the resident engineer is not registered as a professional engineer, this person must defer to the construction engineer any decisions and actions that constitute the practice of civil engineering, as defined by the Professional Engineer's Act.

Selecting a person to act as resident engineer is dependent upon the following:

- The work's magnitude and complexity
- The type of work
- The degree of independent control and direction to be exercised

Only the person best qualified for a specific project should be selected as the resident engineer.

The civil service classification of a resident engineer is related to the project's size and complexity as well as to the staff size required to properly administer the assigned contract or contracts. Normally, the person selected as resident engineer will be a registered professional engineer at the transportation engineer level. On complex projects (or a group of projects) that require a large staff to monitor the contractor's operations, a senior level engineer may be necessary. On more routine contracts that do not involve civil engineering decisions and where the construction engineer is readily available, the resident engineer may be an unregistered experienced transportation engineer. Complexity, rather than monetary value, governs the assignment of resident engineers.

The resident engineer must thoroughly study the assigned project, becoming familiar with all its facets. The resident engineer must analyze the plans, estimate, and preliminary quantity calculations, and determine if the estimated quantities cover all work items contemplated. If the resident engineer discovers any major discrepancies, the engineer must take appropriate action. The resident engineer must also thoroughly study the requirements of environmental commitments and permits, including pollution and erosion control plans.

If it becomes apparent at any time that the probable unobligated balance of funds, with due regard for the amount of work remaining, is not sufficient to complete the project, the resident engineer must bring the situation to the supervisor's attention. To permit contract expenditures to overrun allotted funds seriously reflects on the resident engineer's ability. For the procedure for obtaining additional funds, see Section 5-203, "Obtaining Additional Funds," of this manual.

Once assigned, the resident engineer should remain on the project until its completion, including the completion of all project documents and administrative matters.

#### 1-105C Structure Representative

Under the general direction of a structure construction engineer, the structure representative must inspect, document, and field test materials for all structure work on a project. As a service to the resident engineer, the structure representative will also provide claim positions and draft contract change orders. As a representative of Engineering Services, the structure representative acts within the authority of the following:

- The State Contract Act
- The *Standard Specifications*
- The manual
- The *Bridge Construction Records and Procedures Manual*
- Other applicable administrative instructions

Under the general direction of a construction engineer and a structure construction engineer, the structure representative must administer all assigned contracts. When acting as a resident engineer, the structure representative has authority commensurate to this responsibility.

The structure representative acting as resident engineer should consult the construction engineer whenever the structure representative is unsure about the intent and application of any portion of the contract.

The person responsible for the structural integrity of a construction contract must be a registered professional engineer. If the structure representative is not registered, that person must defer to the structure construction engineer any decisions and actions that constitute the practice of civil engineering, as defined by the Professional Engineer's Act.

#### 1-105D Assistant Resident Engineer

The assistant resident engineer must ensure the performance of assigned work complies with the requirements of the plans, *Standard Specifications*, and special provisions. The duties of the position include the following:

- Ensuring the contractor complies with all contract requirements.
- Performing, or calling for, required tests to ensure work quality.
- Keeping complete, accurate, and concise records of the work and quantities.
- Keeping the resident engineer informed of work progress and problems.
- Responding to any contractor questions about plans and specifications. The assistant resident engineer must not direct the contractor's work but must immediately notify the contractor when work is not in compliance.
- As a representative of Caltrans, acting professionally at all times.
- Working effectively by knowing construction methods and inspection techniques.

#### 1-105E Field Office Engineer

The field office engineer must maintain complete and accurate project records. These records may include the following:

- Monthly progress pay estimates
- Extra work reports
- Contract change orders
- Labor and equipment records
- Correspondence
- Personnel records

Once assigned, the field office engineer should remain on the project until its completion.

#### 1-105F Specialists and Coordinators

The complexity of many Caltrans projects has resulted in the use of many district specialists and coordinators. These include the following:

- Materials and plant specialists
- Weights and measures coordinators
- Survey coordinators
- Labor compliance and civil rights personnel
- Safety coordinators
- Traffic handling, signing, and electrical specialists
- Landscape specialists

- Environmental - construction liaison
- Storm water coordinator
- Schedule analysts
- Claims engineers

In the absence of a Caltrans policy on any specific job problem, the authority of the resident engineer will prevail over that of a specialist or coordinator.

## **1-106 Local Projects**

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Local construction projects are either “State Administered,” “Locally Administered,” or “Administered by Private Sponsor.” For the responsibility of state personnel on local projects, see Chapter 9, “Projects Funded by Other Agencies,” of this manual.